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## Contributions from the New Mexico Biological Station— X. Observations on Bees Collected at Las Vegas, New Mexico, and in the Adjacent Mountains. II.

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*Contributions from the New Mexico Biological Station.—X.*  
*Observations on Bees collected at Las Vegas, New Mexico,*  
*and in the adjacent Mountains. II. By T. D. A.*  
COCKERELL\*.

*Colletes americana*, Cresson.

Las Vegas, Aug. 11, at flowers of *Solidago canadensis*, 1 ♀  
(*W. Porter*).

*Colletes bigeloviae*, Ckll.

Beulah (*W. Porter*).

*Colletes gilensis*, Ckll.

Las Vegas, July 21, at flowers of *Petalostemon oligophyllus*,  
4 ♀ (*Ckll.*); Aug. 1, 3 ♀ (*Porter & Ckll.*); Gallinas River  
at La Cueva, Aug. 6, 2 ♀ (*Porter & Ckll.*). The joints of  
the palpi measure as follows in  $\mu$ :—Maxillary palpi, (1) 200,  
(2) 110, (3) 140, (4) 130, (5) 110, (6) 110; labial palpi,  
(1) 170, (2) 150, (3) 140, (4) 160.

*Petalostemon oligophyllus* is the plant heretofore reported  
from Las Vegas as *P. candidus*; I am indebted to Miss A.  
M. Vail for the correct identification.

*Prosapis basalis*, Smith.

Beulah, July 28, 1 ♂ (*Ckll.*). New to New Mexico.  
This and other species of *Prosapis* were taken on moist  
ground by a stream.

*Prosapis mesillae*, Ckll.

Las Vegas, June 19, at flowers of alfalfa, ♀ (*Ckll.*);  
Aug. 4, ♂ (*W. Porter*).

\* The first part of this paper appeared in *Ann. & Mag. Nat. Hist.*,  
May 1900, p. 401.

*Prosapis rudbeckiæ*, subsp. *ruidosensis*, Ckll.Beulah, July 28, Aug. 18 (*Ckll.*).*Prosapis tridens*, Ckll.Beulah, July 28, 2 ♂, with face-marks light yellow (*Ckll.*).  
New to New Mexico.*Prosapis varifrons*, Cress.Beulah, July 28, 5 ♂ (*Ckll.*); Dailey Cañon, Aug. 10  
(*T. D. A. & W. P. Ckll.*). New to New Mexico.*Halictus amicus*, Ckll., var. *a.*

♀. Face narrower than type; possibly a distinct species.

Las Vegas, at flowers of *Gaura coccinea*, June 18 (*Ckll. & Porter*). The *Gaura* is properly a moth-flower, but is more or less visited by bees when it first opens.*Halictus anomalus*, Rob.Las Vegas, at flowers of *Convolvulus arvensis*, June 17, ♀ (*Ckll.*); July 4, ♀ (*Ckll.*); July 29, at flowers of *Verbesina encelioides*, ♀ (*Ckll.*); Aug. 14, at flowers of *Grindelia squarrosa*, ♀ (*Martin D. Ckll.*). New to New Mexico. Robertson says the abdomen of *anomalus* is impunctate, but the punctures can be seen with a compound microscope.This species has only two submarginal cells, and as it has the size and form of *H. perdificilis*, I wondered whether the Las Vegas specimens might not merely be aberrant examples of that insect. A close examination, however, revealed the following important differences:—

	<i>H. anomalus</i> from Las Vegas (♀).	<i>H. perdificilis</i> , type from Santa Fé (♀).
1st abdominal segment.	With sparse minute punctures; not tessellate.	Distinctly and strongly tessellate; sparsely punctured.
2nd abdominal segment.	Stronger punctures; not tessellate; anterior and posterior halves punctured alike.	Distinctly transversely lineolate; rather closely punctured on anterior half, practically impunctate on posterior.
Median line of mesothorax.	Not grooved; a mere line.	Strongly grooved.
Mesothorax.	Bluish green.	Brassy green.
Metathorax.	Same colour as rest of thorax.	Dark blue, contrasting.

*H. anomalus* differs from *H. semicæruleus* in not having

the bluish lustre on the abdomen, in the shorter metathoracic enclosure, &c. *H. semicæruleus*, however, has the first two abdominal segments nearly as in *anomalus*, not as in *perdifficilis*.

*Halictus armaticeps*, Cresson.

Las Vegas, June 17, at flowers of *Convolvulus arvensis*, ♀ (Ckll.); July 29, at flowers of *Verbesina encelioides*, ♀ (Ckll.); Beulah, May 30, at flowers of *Salix*, ♀ (W. Porter). This is the insect heretofore reported from New Mexico as *H. ligatus*, but Mr. Ashmead believes it is not the true *ligatus* of Say, and I must agree with him, after comparing Say's description.

*Halictus bardus*, Cresson.

Beulah, May 30, at flowers of *Salix*, ♀ (W. Porter).

*Halictus coriaceus*, Smith.

Beulah, May 30, at flowers of *Salix*, ♀ (W. Porter).

*Halictus Lerouxii*, Lep.

Las Vegas Hot Springs, at flowers of *Salix*, ♀ (W. Porter).  
New to New Mexico.

*Halictus mesillensis* (Ckll.), var. *α*.

♀. Head and thorax olive-green. Las Vegas, Aug. 5, at flowers of *Aplopappus spinulosus*, ♀ (Ckll.). This differs from *H. nymphalis* (received from Mr. Robertson) by the distinctly punctured first abdominal segment, the rather smaller size, and the darker, less brightly coloured tegulæ.

The original *mesillensis*, described as a variety of *nymphalis*, has also the punctured first abdominal segment.

*Halictus pruinosus*, Rob.

Las Vegas, July 5, at flowers of *Verbesina encelioides*, ♀ (S. L. Mize); July 11, at flowers of *Cleome serrulata*, ♀ (Ckll.); July 31, at flowers of *Grindelia*, ♀ (Ckll.).

*Halictus ruidosensis*, Ckll.

Beulah, July 26, five females (W. Porter).

*Halictus sisymbrii*, Ckll.

Las Vegas, June 17, at flowers of *Convolvulus arvensis*, ♀ (Ckll.); July 31, at flowers of *Cleome serrulata*, ♀ (Ckll.); July 2, at flowers of *Sidalcea neomexicana*, ♀ (M. Holzman).

*Agapostemon texanus*, Cresson.

The following records all relate to females:—Romeroville, Aug. 6 (*Porter & Ckll.*); Gallinas River at La Cueva, Aug. 6 (*Porter & Ckll.*); Las Vegas, at flowers of *Gaura coccinea* (*Ckll.*); at flowers of *Asclepias verticillata* (*M. Winters*); June 17, at flowers of *Convolvulus arvensis* (*Ckll.*); July 2, at *Sidalcea neomexicana* (*M. Holzman*); July 5, at *Cleome serrulata* (*N. Stern*); at garden pæony (*W. Porter*); July 8, at *Lycium vulgare* (*W. Porter*); July 9, at *Lepachys columnaris* (*M. Holzman*); July 11, at *Cucurbita fætidissima* (*N. Stern*); July 12, at marigold (*A. Garlick*).

*Panurginus Boylei* (*Ckll.*).

Las Vegas, July 26 and 29, at *Verbesina encelioides*, ♂ (*Ckll.*); July 31, at *Grindelia*, ♂ (*Ckll.*); Aug. 3, at *Helianthus annuus*, 2 ♂, one parasitized by a ♀ *Stylops* (*W. Porter*).

Var.  $\alpha$ . ♂. With a yellow line on scape in front. Las Vegas, Aug. 2 (*W. Porter*).

*Panurginus pauper*, var. *flavotinctus*, *Ckll.*

Las Vegas, Aug. 2, 2 ♂ (*W. Porter*).

*Calliopsis coloradensis*, Cresson.

Las Vegas, Aug. 2, ♀ (*W. Porter*); Aug. 5, at *Helianthus annuus*. The eyes in life are pale sage-green.

*Calliopsis lepidus*, Cresson, var.  $\alpha$ .

♀. Near *C. rhodophilus*, but face-marks white. ♂ differs from *rhodophilus* by the wholly black scape. The ♀ agrees with Cresson's description of *C. lepidus*, except that the hair on the basal joint of tarsi beneath is barely fulvous; the dog-ear marks on the face are present, whereas in *rhodophilus* they are wanting. I sent a drawing of the Las Vegas *lepidus* to Mr. Fox, who kindly compared it with Cresson's type, and reported: "The face-marks of *Calliopsis lepidus* agree almost exactly with your drawing. The only difference is that the lateral marks are slightly narrower than in the drawing."

Las Vegas, July 24, at flowers of *Convolvulus incanus*, ♀ (*W. Porter*); Aug. 13, flying over the ground close to some *Sphaeralcea cuspidata*, 2 ♂, 1 ♀ (*Ckll.*); July 11, 1900, many females at flowers of *Melilotus officinalis* (*W. P. Ckll.*). New to New Mexico.

*Perdita zebrata*, Cresson.

Gallinas River at La Cueva, Aug. 6 (*W. Porter*).

Var.  $\alpha$ . ♂. Small, only 5 mm. long; first abdominal segment entirely black above. Two at flowers of *Cleome serrulata*, Las Vegas, July 19 (*Porter & Ckll.*).

*Spinoliella scitula* (Cresson).

Las Vegas, July 23, at *Cleome serrulata*, 1 ♀ (*W. Porter*). Mr. Ashmead (*in litt.*) states that the following species, all described as *Calliopsis*, belong to his new genus *Spinoliella*:—*S. scitula* (Cress.), *S. australior* (Ckll.), *S. zebrata* (Cress.), *S. maculata* (Smith), and *S. Edwardsii* (Cress.). To these should apparently be added the following, also described as *Calliopsis*:—*S. cincta* (Cress.), *S. interrupta* (Prov.), *S. quadrilineata* (Prov.), *S. meliloti* (Ckll.), *S. scutellaris* (Fowler), *S. visaliensis* (Fowler), *S. anthidius* (Fowler).

*Melecta miranda*, Fox.

Las Vegas, at flowers of *Zinnia grandiflora*, July 27 (*W. Porter*).

Var.  $\alpha$ . Smaller, about 9 mm. long. Las Vegas, July 9, on *Sphaeralcea cuspidata*, but not on flowers (Ckll.); July 19, at flowers of *Cleome serrulata* (Ckll.).

*Ashmeadiella buconis* (Say).

Las Vegas, July 24 (*W. Porter*); July 29 and Aug. 5, at flowers of *Verbesina encelioides*, ♀ (Ckll.).

*Ashmeadiella cactorum*, Ckll.

♂. Length 5 mm. Las Vegas, Aug. 4, two at flowers of *Convolvulus arvensis* (*W. Porter*).

*Melissodes agilis*, Cresson.

Las Vegas, July 5 (*N. Stern*); July 25, at flowers of *Helianthus annuus*, 1 ♂ (*W. Porter*); July 31, at *Verbesina encelioides*, 1 ♂ (Ckll.); Sapello Cañon, Aug. 31 (*W. Porter*); San Ignacio, Aug. 31 (*W. Porter*).

Var.  $\alpha$ . ♂. No yellow spot on mandibles. Las Vegas, July 17, at *Cleome serrulata* (*A. Garlick*); July 26, at *Verbesina encelioides* (Ckll.).

*Melissodes agilis*, var. *aurigenia* (Cresson).

The males vary in length from 9 to  $10\frac{1}{2}$  mm. Romero-

ville, Aug. 6 (*Porter & Ckll.*); Las Vegas, July 19, at *Helianthus*, ♂ (*L. Reed*); July 22, at alfalfa and *Helianthus annuus* (*W. Porter*); July 20, at *Aplopappus spinulosus*, ♂ (*W. Porter*); July 26, at *Verbesina encelioides*, ♀ (*Ckll.*); Aug. 3, at *Helianthus annuus*, ♂ ♀ (*W. Porter*).

*Melissodes gilensis*, Ckll.

Las Vegas, July 20 and 22, at *Cleome serrulata*, ♀ (*W. Porter*); July 24, at *Sidalcea neomexicana*, ♀ (*W. Porter*).

*Melissodes grindeliæ*, Ckll.

Las Vegas Hot Springs, Aug. 10, at flowers of *Senecio Douglasii* and *Helianthus annuus*, 6 ♂ (*W. Porter*); Las Vegas, July 19, at *Verbena Macdougali*, ♀ (*W. Porter*); July 22, at *Cleome serrulata*, ♀ (*W. Porter*); July 22, at *Lepachys columnaris* and *L. tagetes*, ♀ (*W. Porter*); Aug. 5, at *Verbesina encelioides*, ♂ (*Ckll.*).

*Melissodes pallidicincta*, Ckll.

The following records all relate to females:—Las Vegas, June 22 and 23, also 29, at *Malvastrum dissectum* (*Ckll.*); July 1, 2, and 5, at *Sidalcea neomexicana* (*M. Holzman*); July 3, at *Trifolium repens* (*N. Stern*); July 4 and 11, at *Cleome serrulata* (*N. Stern, Ckll.*); July 6, at *Verbena Macdougali* (*Ckll., M. Winters*); July 6, at *Sphaeralcea lobata* (*W. Porter*); July 10 and 24, at *Asclepias verticillata* (*N. Stern, W. Porter*); July 24, at an umbellifer (*W. Porter*); Aug. 1, at *Lycium vulgare* (*W. Porter*); Romeroville, Aug. 6 (*Porter & Ckll.*).

*Melissodes tristis*, Ckll.

Las Vegas, July 20, at *Cleome serrulata*, 1 ♂. This is very probably the male of *M. pallidicincta*; but if so, it is curious that only one was caught, while the females abounded.

*Melissodes ruidosensis*, Ckll.

Beulah, July, 1 ♂ (*W. Porter*); Las Vegas, Aug. 2, 1 ♂ (*Porter & Ckll.*).

*Xenoglossa pruinosa* (Say).

Las Vegas, July 13 and 15, at flowers of *Cucurbita foetidissima* (*M. Winters, M. Holzman, W. H. Rishel*); July 21, males asleep in flowers of *Cucurbita foetidissima*, at 7.45 p.m. (*Ckll.*); July 22, at flowers of *Asclepias speciosa*, 1 ♀ (*W. Porter*).



*Anthophora maculifrons*, Cresson.

The male abdomen ends in four spines. Las Vegas, July 18, at *Sphæralcea lobata*, 1 ♀ (*W. Porter*); July 19, at *Lycium vulgare*, ♂ (*W. Porter*); Aug. 9 to 12, at *Grindelia squarrosa*, 5 ♂ (*S. L. Mize & W. Porter*); Aug. 9, at *Verbena Macdougali*, 4 ♂, 2 ♀ (*W. Porter*).

*Anthophora (Amegilla) cardui*, Ckll.

Las Vegas, July 11, at *Cleome serrulata*, ♂ (*Ckll.*); Aug. 11, at *Petalostemon oligophyllus*, ♂ (*W. Porter*); Las Vegas Hot Springs, Aug. 10, at *Verbena Macdougali*, ♂ (*W. Porter*).

*Anthophora (Amegilla) cleomis*, Ckll.

The ♂ abdomen ends in two blunt spines. Las Vegas, July 6, at *Sphæralcea lobata*, ♂ (*W. Porter*); July 9, at *Sidalcea neomexicana*, ♂ (*M. Holzman*); July 19, at *Lycium vulgare*, 1 ♀, 3 ♂ (*W. Porter*); July 20, at *Verbena Macdougali*, ♂ (*W. Porter*); July 23, at *Salvia lanceolata*, ♂ (*W. Porter*); Aug. 1, at *Cleome serrulata*, ♀ (*W. Porter*); Rociada, Aug. 20, ♀ (*W. Porter*).

*Anthophora (Amegilla) montana*, Cresson.

Las Vegas, July 8, at *Lycium vulgare*, ♀ (*W. Porter*); July 10, at *Cleome serrulata*, ♀ (*M. Winters*); July 14 and 19, at *Cleome serrulata*, ♀ (*A. Garlick*).

*Anthophora (Amegilla) urbana*, var. *alamosana* (*Ckll.*).

In the male the thoracic hair has no black intermixed, and the clypeus and lateral face-marks are white. Las Vegas, June 19, at alfalfa, ♂ (*Ckll.*); July 8, at *Lycium vulgare*, ♀ (*W. Porter*).

*Clisodon terminalis* (Cresson).

Beulah, July (*W. Porter*); Aug. 18, at flowers of *Polemonium* (*W. Porter*); Harvey's Ranch, Aug. 22 (*W. Porter*); Sapello Cañon, Aug. 31 (*W. Porter*). A species of the Canadian zone.

*Apis mellifera*, var. *ligustica*, Spinola.

Las Vegas, July, at *Cleome serrulata*, alfalfa, &c.

Numerous critical species, some of them evidently undescribed, are left over for subsequent treatment.

East Las Vegas, New Mexico, U.S.A.,  
Nov. 2, 1900.

